NOTES.

Last week we printed an article advocating the claims of M. Giard to the new Chair of Darwinism in Paris. We are now informed that the appointment will certainly be offered to M. Giard, and that, if he declines it, it will be offered to Prof. Perrier, of the Paris Museum of Natural History. It is generally desired that the Chair should be connected with the Faculty of Sciences in the Sorbonne. M. Liard, the Director of Superior Instruction, in the Department of Public Instruction, is favourable to the whole scheme, and hopes are expressed that the lectures may be begun in the course of two or three months.

Mr. G. J. Romanes has been elected Fullerian Professor of Physiology at the Royal Institution. He intends to devote all the three years of his professorship to one continuous course of lectures on "Before and after Darwin." This year's course—"Before Darwin"—will be an historical survey of the progress of scientific thought and discovery in biology from the earliest times till the publication of "The Origin of Species." Next year's course will be "On the Evidence of Organic Evolution," and the third year's "On the Factors of Organic Evolution."

On Saturday, the 21st inst., at three o'clock, Lord Rayleigh will deliver, at the Royal Institution, the first of a course of seven lectures on Experimental Optics. The remaining lectures of the course will be given at the same hour on the following Saturdays.

The annual general meeting of the Anthropological Institute of Great Britain and Ireland will take place on Tuesday, the 24th inst., at 8 o'clock p.m. precisely, Mr. Francis Galton, F.R.S., President, in the chair. The following will be the order of business:—Confirmation of the minutes; appointment of scrutineers of the ballot; Treasurer's financial statement; report of Council for 1887; the Presidential Address; report of scrutineers; and election of Council for 1888.

Dr. H. Lloyd Snape has been elected to fill the Chair of Chemistry at University College, Aberystwith, rendered vacant by the death of Prof. Humpidge. The new Professor acted for three sessions as Demonstrator of Chemistry at University College, Liverpool. Afterwards he studied at the Universities of Berlin and Göttingen under the direction of Profs. Hofmann and V. Meyer respectively. On his return to England he was appointed Director of the Department of Pure and Applied Chemistry in the Manchester Technical School.

We regret to announce the death of Mr. Hayden, the well-known American geologist. He died on December 22 last.

Mr. Andrew Garrett, an eminent American conchologist, died at his residence on the island of Huahine, Society Group, South Seas, on November 1 last, in his sixty-fifth year.

The Meteorological Council has recently published Part III. of the Daily Synchronous Weather Charts of the North Atlantic and the adjacent continents. Parts I. and II. were respectively noticed in Nature, vol. xxxv. p. 469, and vol. xxxvi. p. 178. The part just issued, dealing with the period from February 15 to May 24, 1883, comprises the weather for the end of the winter and the early spring. The charts show clearly how very different are the conditions which exist over the Atlantic in the winter from those which exist in the spring. The early charts contain numerous instances of storms, and the barometrical disturbances which accompany them embrace a large part of the North Atlantic Ocean. An interesting case of storm development is shown over the American Lakes on February 19. The disturbance subsequently traversed the Atlantic, and passed about 800 miles to the north of Scotland on the 24th, causing a moderate gale in the north of our islands, and gales generally over the north-west of Europe. There is another instance of rapid storm development off Florida on April 2, the disturbance growing into a severe hurricane when south of Newfoundland on the 4th. A storm-area was formed off the north-west coast of Africa on February 20. This seems to have originated in an intensifying of the northerly wind on the eastern side of the Atlantic anticyclone. On the 22nd the storm was fully developed, and the cyclonic circulation was complete, the barometer registering as low as 29·6 inches. This disturbance travelled to the westward as far as the middle of the Atlantic. On the 25th it was clearly dying out, but on the 26th it apparently gained fresh life, and on February 28 and March 1 it was causing a gale close to the American coast, and to the south of Newfoundland and Nova Scotia. It afterwards travelled eastwards, skirting to the north-west of Iceland on March 3, and finally struck the north-west coast of Norway on the 4th. There is also a case of a double-headed depression travelling to the eastward across the Atlantic between March 25 and 31. These charts show very clearly the explanation of the cold northerly and north-easterly winds experienced over England during the spring, the isobaric lines indicating a general extension of the Atlantic high pressure over our islands at this season.

At the meeting of the French Meteorological Society on the 6th ult. a paper by M. André, Director of the Lyons Observatory, on the influence of altitude on temperature, was read. The observations were made in the environs of Lyons in the years 1881–84. The mean diurnal range was 18°·5 F. at the lowest station (574 feet), and 12°·3 at the highest station (2050 feet). M. Poincaré submitted a table showing the relation between the barometric movements at lat. 40° and 10° N., and the phases of the moon. M. Renon made a communication on the observation of fog. He considered the present method of observation to be defective, as the observer could only note what exists around him; a knowledge of the conditions at a considerable height above him was necessary, to arrive at satisfactory conclusions. This desideratum was also urged by M. Janssen.

On January 3, snow fell in Christiania from a perfectly clear sky. After a strong southerly wind with cloudy weather in the morning the weather cleared, but at about noon it again thickened, and snow and sleet fell. In the afternoon the sky again became clear and continued thus, with a storm blowing from the west. Just before 8 p.m., however, thick clouds again gathered, the full moon became obscured, and snow began to fall heavily. A quarter of an hour later the wind swept the clouds away, and the sky became completely clear, with the exception of a few clouds in the east. The stars shone brightly, and the full moon illuminated the landscape; still snow continued to fall thickly for some ten minutes. That the snow could not have originated with the clouds in the east is proved by the circumstance that the wind was westerly. A well-known meteorologist ascribes the phenomenon to the presence at a certain elevation in the atmosphere of a very cold layer of air in which the ascending, comparatively warmer, air became condensed, the moisture being thrown out in the form of snow, but not in sufficient quantities to obscure the blue sky, the stars, and the moon. The great chilling of the layer of air referred to may have been caused by the coldness of the heavy snow clouds which a few minutes previously filled the atmosphere.

On December 24, at 9.45 p.m., a brilliant meteor was observed in the north-western sky at Örebro, in Central Sweden. The light, variegated in colour, was very intense. The meteor seemed to fall perpendicularly to the earth with a slow motion, and dissolved itself without any report. On December 25, at about 5 p.m., another meteor, shining with an intense bluishwhite light, was seen going in a north-westerly direction at Karlskogo, also in Central Sweden.

ANOTHER important paper upon the synthesis of glucose is communicated by Drs. Emil Fischer and Tafel to the current number of the *Berichte*. They have succeeded in artificially preparing glucose directly from glycerine. It will be remembered that this synthesis was first effected by decomposition of acroleïn dibromide, CH_2Br . CHBr . CHO, with baryta water; glycerine aldehyde, CH_2OH . CHOH . CHO, being probably first formed, and afterwards polymerizing into glucose. Hence it might be expected that the same result could be achieved by direct oxidation of glycerine to aldehyde and subsequent condensation by means of alkalies. This supposition has been completely confirmed by experiment, and the new method is at once an easier and a cheaper one. A large quantity of glycerine was first oxidized by means of soda and bromine, the temperature being kept down to 10°. The bromine readily dissolved on shaking, and the evolution of carbonic acid gas soon rendered evident the progress of the change. After half an hour the reaction was found to be complete; the liquid was then acidified with hydrochloric acid and a current of sulphur dioxide passed through it until all the bromine was reduced. The liquid, after neutralization with soda, was found to contain a large quantity of glycerine aldehyde. About 1 per cent. more soda was then added, and the solution allowed to stand at a temperature of about 0° for four or five days. As the polymerization proceeded, the liquid gradually lost the power of reducing alkaline copper solutions in the cold, but, like sugar, rapidly reduced them on warming. In order to isolate the sugar thus formed, the phenylhydrazine compound was prepared, as in the former experiments, by neutralizing with acetic acid and adding phenylhydrazine and sodium acetate, heating six hours upon a water-bath. After some time crystals of the phenylhydrazine compound, $C_{18}H_{22}N_4O_4$, were deposited, and after purification were found to possess all the properties of the compound obtained from acroleïn dibromide; in fact, they were identical with it. This compound crystallizes in beautiful yellow needles, melting at 217°; on heating it with zinc dust and acetic acid, a base is obtained which, by the action of nitrous acid and subsequent neutralization with soda, yields, on evaporation, syrupy glucose itself. Not only does this later work of Drs. Fischer and Tafel confirm their former striking results, but it leaves the subject in a much more complete state, and furnishes chemists with a far readier method of preparing artificial glucose in the laboratory.

THE habits of a running spider of Southern Europe, *Tarantula narbonensis*, Latr., studied by Herr Beck, are curious. It makes a vertical round hole in the ground about 10 inches deep, and this, with a small earth-wall sometimes made round the mouth, is lined with web. A little way down is a small lateral hole, into which the spider shrinks when an animal falls into the tube; when the animal has reached the bottom the spider pounces on it. One can readily tell that a tube is tenanted, by the bright phosphorescent eyes of the spider turned upwards. In fight the spider erects itself on its last pair of legs, striking with the others. The bite is not fatal to man, but it causes large swellings. The children in Bucharest angle for these spiders by means of an egg-like ball of kneaded yellow wax tied to a thread. This is lowered with jerks into the hole, and the spider fastens on it and can be pulled out; whereupon another thread is passed round one of the legs, and the animal is played with.

LEMMINGS are very numerous in several valleys in Southern Norway this winter. In many places the snow is furrowed for miles by the march of these little animals on their migration southwards.

IN November last a Runic stone was found at Häggerstalund, in Sweden. A lady happened to notice a long stone in the proximity of a well-known Runic boulder, and having had it turned found that there was an inscription on the other side, which has been interpreted thus:—"Gârdar and Jorund raised these stones after (in memory of) their sister's sons, Ernmund and Ingemund." The newly-discovered stone is of importance, as it supplements the Runic inscription of the other stone, viz.:—"These memorial stones are made after (in memory of) the sons of Inga. She took heirloom after them, but these brothers (referred to on the other stone) will take heirloom after her. Gjad's (?) brothers; they died in Greece." The latter stone is made particularly interesting by the reference to the death of the two men in Greece.

WHILST digging for potatoes late last autumn on the Island of Fredöen, on the west coast of Norway, a man unearthed a flat gold armlet with Runic inscriptions, and bearing on the inside the year 875. On the outside is a large bright stone, but of what kind has not yet been ascertained. This island is rich in historical traditions from the Viking era.

IN a late issue of the *Izvestia* of the Russian Geographical Society M. Krasnoff makes some interesting remarks on the antiquities of Turkistan. He points out that in the stone inscriptions he has seen in the Tian-Shan the men are always represented on horseback, armed with bows, arrows, long pikes with flags, and curved swords. Their dress is like the present *khalat* of the Mongolians and the Turks. The scenes represented mostly relate to hunting, and the men are surrounded by stags, *arkhars* (wild sheep), foxes, tigers, wild boars, and some very big animal with a thick hairy tail, and with tusks like those of the mammoth. In the gorge of the Uzun-su, M. Krasnoff saw the drawing of a camel. There are no inscriptions proper by the side of these drawings; but plenty of wild sheep, like the *tau-tek* of our days, are represented in files along mountain-paths. These drawings are very rapidly obliterated, and will soon disappear. They ought to be reproduced by archæologists.

THE second number of the "Bibliographies of Indian Languages," by James C. Pilling, has just been issued by the U.S. Bureau of Ethnology. It treats of the Siouan stock.

A USEFUL Catalogue of British Mollusca, published by Mr. H. W. Marsden, of Gloucester, has been sent to us. The Catalogue has been compiled by Mr. Charles Jeffreys, from Jeffreys' "British Conchology," with alterations and additions to date.

THE Royal Botanic Garden of Calcutta has just completed the first hundred years of its existence, having been established in the year 1787. The *Times of India*, in reviewing the history of the Garden, points out the many advantages which it has conferred on India. It has practically established and has done wonders to promote the now flourishing tea industry of India. The directors were the first to introduce potato-growing in that country, and they imported the quinine-yielding cinchonas from South America, and thus took the first step towards the establishment of what is now one of the most successful Indian industries. Besides these great successes, India owes to that establishment, the *Times of India* thinks, almost all the efforts that have been made to improve the quality of Indian cotton, and to push its sale in the European markets. The best sugar-cane has been brought from the West Indian Islands, and has been planted in all parts of the country; and flax, hemp, tobacco, henbane, vanilla, coffee, cocoa, ipecacuanha, india-rubber, tapioca, and many other products have been systematically experimented on in the Garden. Nor has horticulture been neglected by the superintendents, for the presence in India of a large portion of its exotic plants is due to them; and the improved systems of cultivation are in a great measure attributable to their efforts.

THE French Government has commissioned Count Horace de Choiseul, a member of the Chamber of Deputies, to proceed on a voyage of botanical research to Asia and the United States. He will visit the Botanical Gardens at Ceylon, Calcutta, Shanghai, Japan, San Francisco, &c., to collect botanical specimens not indigenous to France.

THE Royal Physical Society, of Edinburgh, seems to be doing much good work. At the second meeting for the present session, Sir William Turner in the chair, Mr. Hoyle read a note discussing the function of the Laurer-Stieda canal in the Trematoda; Mr. J. Arthur Thomson submitted an elaborate paper entitled "A Synthetic Survey of the Influence of the Environment upon the Organism"; the Secretary, Dr. Traquair, communicated a paper on an ornithological visit to the Ascrib Islands, by Mr. John Swinburne; and Mr. Brook gave some valuable notes on the marine Crustacea of the Clyde Estuary.

CAPT. WIGGINS, who successfully performed the sea voyage from Europe to Siberia last autumn in the steamer *Phœnix*, is shortly expected back in this country. He states that at the time of his leaving Yeniseisk, in Siberia, in October, the cold varied from 70° to 80° below zero, and that the mercury was frozen in the bulb.

AT the annual meeting and distribution of prizes at the School of Science and Art at Bromley, Kent, on Tuesday, Sir John Lubbock delivered an interesting address on technical education. He referred to a recent statement of Mr. S. Smith, one of the Commissioners on Technical Education, to the effect that it was not so much the longer hours and lower wages of Continental workmen, nor the tariffs, which were having such objectionable influence on our industries, but rather, in nearly all instances, the great attractiveness of the goods themselves, which had been made by workmen who had received special training in schools. Sir John Lubbock went on to say that if we had spent one tithe of the treasure which we sent abroad every year to buy the produce of the skill of other countries on the training of our own people, we should have been making these goods ourselves and shipping them to the East and West and to every country under the sun. We were constantly crying out for new markets, while there was a new market in every house in the country. We were apt, indeed, to forget how much we owed to science, because many things which were in reality scientific discoveries had become so familiar to us that we looked upon them almost as a matter of course. The electric light was still felt to be a triumph of science, but we forgot sometimes that the common candle was the result of a whole series of chemical discoveries. The Chinese were said to have examined candidates for the army until lately in the use of bows and arrows. We saw the absurdity of this; but we were not free from the same error ourselves.

IN a recent Consular Report there is a complete description of the Technical University of Belgium, which was founded in 1852, as well as a general sketch of the system of commercial and technical training prevailing in that country. Formerly the education in Belgian public schools (*Athénées*) was in the main classical, but in recent years a *section professionelle* (commercial and scientific) has been added, and now takes its place as an integral portion of the public-school system. Here youths intended for commercial pursuits, from the fourth class upwards, receive special instruction, and then pass on to the *Institut*, or University, where the course lasts two years. The number of pupils is 150, a number which would be largely increased, but for the difficult entrance examination, the inability of many parents to keep their children so long at school, and the prevailing idea that a youth intended for commerce cannot enter a counting-house too soon. The course at the *Institut* includes, besides languages, book-keeping, and the ordinary practical work of a merchant's office, a technical description of the ordinary articles of commerce, political economy and statistics, commercial and industrial geography, maritime and Customs' legislation, and the building and fitting out of ships. The fees range from £11 for the second year at the *Institut*, to £3 5*s*. per annum at the public schools. An extensive commercial museum, a chemical laboratory, and a commercial library are attached to the *Institut*. At the end of the course diplomas are given to the successful candidates, entitling them to the degree of *Licencié en Sciences Commerciales*. The rules, and a programme and syllabus of the lectures, are appended to the Report. The new language, *Volapük*, has been added as an experiment, mainly, it would appear, because of its possible utility for telegraphic communication.

THE additions to the Zoological Society's Gardens during the past week include a Mexican Deer (*Cariacus mexicanus* ♀) from the Island of Dominica, presented by Mr. George Anderson; a Water Rail (*Rallus aquaticus*), British, presented by Mr. G. J. Payne; two Black-headed Gulls (*Larus ridibundus*), British, presented by Mr. Thomas A. Cotton; two Common Peafowls (*Pavo cristatus* ♀ ♀) from India, presented by Mr. Richard Hunter; sixty-six Skylarks (*Alauda arvensis*), British, purchased; an Egyptian Vulture (*Neophron percnopterus*) from North Africa, received in exchange.

OUR ASTRONOMICAL COLUMN.

THE MAURITIUS OBSERVATORY.—The report of the Director of the Royal Alfred Observatory, Mauritius, for 1886, shows that the activity of the institution continues to be exhibited in two directions, viz. meteorological and magnetic observations, and the photographic record of the state of the solar surface. The meteorological observations have been extended during the year by the addition to the daily routine, of observations of the duration of bright sunshine, commenced October 1, of maximum and minimum dry and wet bulb thermometers in screens, begun November 1, and of an earth thermometer at 10 feet below the surface of the ground, begun the same day, the necessary instruments having been received from England. The year 1886 was a particularly dry one, the rainfall being below the average in every month, and the annual fall the smallest on record. No hurricane visited the colony; indeed, the last took place so long ago as March 21, 1879; but several cyclones occurred in the Indian Ocean, some of which passed near the island, and storm warnings were issued. Dr. Meldrum gives considerable importance in his report to the connection between the meteorology of the island and its health. It appears that wet years give specially high fever and death rates, the greatest mortality usually following the maximum rainfall by about two months. At the same time there has been a persistent increase in the death rate of late years, which appears to be independent of meteorlogical causes.

The photoheliograph was in constant operation, 533 photographs having been obtained on 353 days, but the sunspots were much fewer and smaller than in 1884 and 1885. Two photographs were also obtained of the solar eclipse of August 29, which commenced at Mauritius a little before sunset.

OCCULTATIONS OF STARS BY PLANETS.—The following lis of possible occultations of stars by planets is in continuation of that given in NATURE, vol. xxxvii. p. 234:—

Planet.	G.M.T. of Conjunction in R.A.			Star.	Mag.	Pl. − ∗.	Max. Duration.
		h.	m.				m.
♀	Jan. 25	18	30·0	AOe$_2$ No. 17179	8·5	− 0·39	5·0
♀	31	17	30·5	S.D. − 21° No. 4933	9·3	+ 0·58	4·7
♄	Feb. 5	11	18	D.M. + 20° No. 2073	9·5	− 0·88	108
♄	16	7	27	D.M. + 20° No. 2062	9·5	+ 0·38	121